
A New Species of *Psychotria* Subgenus *Psychotria* (Rubiaceae) from Costa Rica

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ABSTRACT. An unusual new species with sessile inflorescences, *Psychotria turrubarensis* W. Burger & Q. Jiménez, is described and illustrated. It is only known from 1,600 m elevation in the Zona Protectora Cerro Turrubares of central Costa Rica.

Cerro Turrubares is a prominent mountain on the Pacific slope just southwest of Costa Rica's Meseta Central. This area experiences a dry season of approximately five months, December to April. The Zona Protectora Cerro Turrubares, below the elevation of 800 m, includes a transitional zone, where the lowland evergreen forests of the south intergrade with the deciduous forests of the north. The drier forest is characterized by *Bombacopsis quinata* (Jacquin) Dugand, *Cedrela odorata* L., *Tabebuia rosea* (Bertoloni) A. DC., and other species. This lower elevation area has been subjected to intensive use for farming and ranching.

A majority of the highlands that make up the Zona Protectora, including its highest peak (Cerro Bares, 1,756 m), support original evergreen forest. These forests contain species characteristic of Costa Rican forests between 800 and 2,000 m elevation, such as *Ulmus mexicana* (Liebmann) Planchon, *Quercus seemannii* Liebmann, and *Panopsis suaveolens* (Klotzsch & G. Karsten ex Klotzsch) Pittier. Access to these forests has always been difficult because of poor roads, and for this reason there have been few botanical collections from this area. Considering that these forests of higher elevation are relatively isolated from the Cordillera Volcánica Central and from the Cordillera de Talamanca, it is not surprising to find a new endemic species here. At present we know this species from only a single collection, but it possesses a number of unusual characteristics that, we believe, justify its recognition and description.

Psychotria turrubarensis W. Burger & Q. Jiménez, sp. nov. TYPE: Costa Rica. Prov. San José: Faldas del Cerro Bares, Zona Protectora Cerros de Turrubares, 9°47'30"N, 84°28'30"W, 1,600 m, 6 Nov. 1990 (fl, fr), Q. Jiménez, R. Zúñiga & G. Varela 935 (holotype, CR; isotypes, F, MO). Figure 1.

Frutex ca. 4 m altus, omnino glaber, stipulibus 12–16 mm longis, lanceolatis (late ovatis subter inflorescentiis), caducis. Foliae oppositae, interdum quaternae, petiolis 5–18 mm longis; laminae 7–13 cm longae, 3–6.5 cm latae, ellipticae vel elliptici-obovatae, nervis secundariis 5–9 paribus, foveis domatorum glabris. Inflorescentiae sessiles solitariae, terminales vel pseudo-axillares, 8–16 mm longae, basi tomentulosae. Flores sessiles, calyce tomentulo, corolla alba, tubo usque 5 mm longo, lobulis 5, ca. 3 mm longis. Fructus 7–8 mm longi, 6–9 mm lati, rubri, sessiles; pyrena pagina interna plana.

Shrubs, ca. 4 m tall, leafy stems 1.3–3.5 mm thick, glabrous, drying pale grayish; stipules 12–16 mm long, 3–4 mm broad at the base, lanceolate, forming a calyptrate sheath over the shoot apex and splitting along one side (broadly ovate and ca. 10 × 10 mm below the developing inflorescences), drying dark reddish brown, caducous, with thin deciduous reddish hairs interior to the base of the stipule. Leaves opposite or apparently in a whorl of 4 when an internode fails to elongate, petioles 5–18 mm long, 1.1–2.3 mm broad, glabrous and drying dark, flat or sulcate above; leaf blades 7–13 cm long, 3–5.5 (6.5) cm broad, elliptic to elliptic-obovate or elliptic-oblong, acute to bluntly obtuse at the apex, acute to cuneate at the base and slightly decurrent on the petiole, drying stiffly chartaceous and grayish above (similar beneath), glabrous above and below, venation eucamptodromous, with 5–9 major secondary veins on each side, central secondaries arising at angles of 40°–60°, deep rounded pit-domatia (0.2–0.4 mm broad) usually present at the vein axils beneath. Inflorescences terminal or pseudoaxillary,



Figure 1. *Psychotria turrubarensis* W. Burger & Q. Jiménez. Three twigs from an isotype collection (F) with centimeter scale. Center left, an enlarged view of an inflorescence. Bottom left, abaxial (dorsal) and adaxial surfaces of the pyrene. (Millimeter scale applies to enlarged inflorescence and pyrenes.) Bottom right, an enlarged view of the domatia. Drawn by the senior author.

solitary, sessile capitula, 8–16 mm long, 10–15 mm broad, at first enclosed by the broad bracteate stipules, with 10–20 flowers, bracteoles to 2 mm long, difficult to see among the tomentulous hairs, flowers sessile or subsessile. Flowers 5-parted, buds with corolla-tips separate distally, hypanthium/ovary ca. 1 mm long, calyx with tomentulous yellowish hairs, calyx lobes ca. 1 mm long; corolla white, salverform,

glabrous on the outside, corolla tube to 5 mm long, 2 mm diam. distally, with dense thin hairs within the throat, corolla lobes ca. 3 mm long and 1 mm broad, usually with a thickened rounded abaxial expansion on the tip ca. 0.3 mm diam.; style exerted 2 mm. Fruits 7–8 mm long, 6–9 mm thick, subglobose, red at maturity and subsessile, surface smooth; pyrenes 7×6.5 mm, flat on the inner

(adaxial) face, with 5 longitudinal sulci on the rounded abaxial (dorsal) surface.

Distribution. The species is only known from the type collection, collected in the understory of evergreen forest at 1,600 m elevation. Some species observed growing in association with the new species are: *Citronella costaricensis* (J. D. Smith) R. Howard, *Hoffmannia longipetiolata* Polakowsky, *Ocotea valeriana* (Standley) W. Burger, *Pisonia sylvatica* Standley, *Sorocea trophoides* W. Burger, and *Ulmus mexicana* (Liebmann) Planchon.

Psychotria turrubarensis is distinguished by its small sessile capitate inflorescences, united stipules forming a calyptrate sheath over the vegetative shoot apices, glabrous vegetative parts, well-developed pit-domatia, and the wartlike protuberance at the tips of the corolla lobes. Hairs are present only at the throat of the corolla and on the calyx and inflorescence. The reddish (when dried) hairs at the adaxial base of the stipules, red fruit, and leaves drying grayish are characteristics of subgenus *Psychotria*. The presence of pit-domatia also characterizes a number of Costa Rican species of subgenus *Psychotria*; pit-domatia are rarely present in Central American species of subgenus *Heteropsychotria*.

The glabrous pit-domatia have well-defined, slightly elevated, rounded edges and are quite deep. A few have the bodies of small ants tightly packed within, as if they had been forced into the cavity.

Because of the lack of inflorescence branching, this species is difficult to place within Hamilton's (1989) groupings of Mesoamerican species of subgenus *Psychotria*. The flat or slightly concave inner (adaxial) surface of the pyrene, lacking a longitudinal sulcus, is also an unusual trait within subgenus *Psychotria*. The deep pit-domatia are similar to those of *P. remota* Benth, but smaller. We regret that we were not able to publish this species in a more timely fashion, as was originally planned (cf. Burger & Taylor, 1993: 277).

Literature Cited

- Burger, W. & C. M. Taylor. 1993. Family #202, Rubiaceae. In: *Flora Costaricensis*. Fieldiana, Bot. n.s. no. 33: 1-333.
- Hamilton, C. 1989. A revision of Mesoamerican *Psychotria* subgenus *Psychotria* (Rubiaceae), Part I: Introduction and species 1-16. *Ann. Missouri Bot. Gard.* 76: 67-111; Part II: Species 17-47. *Ann. Missouri Bot. Gard.* 76: 386-429; Part III: Species 48-61 and appendices. *Ann. Missouri Bot. Gard.* 76: 886-916.